

October 28, 1997

Colonel Robert H. Reardon, Jr.
District Engineer
U. S. Army Corps of Engineers
Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

Attn: Alice Allen-Grimes, Regulatory Branch

Re: Virginia Department of Transportation,
Permit No. 97-4052-15
Scott County, Virginia

Dear Colonel Reardon:

This responds to the June 26, 1997, request from the U.S. Army Corps of Engineers for formal consultation under Section 7 (a) (2) of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), regarding the Virginia Department of Transportation (VDOT) project 0072-084-V04-C503-B601 for construction of a new Route 72 bridge across the Clinch River in Scott County, Virginia. Your June 26, 1997, request was received by the U.S. Fish and Wildlife Service on July 8, 1997. This document represents the Service's biological opinion on the effects of the proposed action on one federally listed, threatened fish species and its designated critical habitat, and fourteen federally listed, endangered mussel species in accordance with Section 7 (b) of the Endangered Species Act of 1973. A complete administrative record of this consultation is on file in this office.

I. CONSULTATION HISTORY

Consultation history regarding this project is provided in Appendix A.

II. BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

VDOT has applied for a federal permit to construct a new two-lane bridge for Virginia Route 72 over the Clinch River (Figure 1) near Fort Blackmore, Virginia. The new bridge will span the entire normally wetted channel of the Clinch River, with piers on the bank on the north side of the river and in a wetland floodplain area on the south side of the channel (Figure 2). With the new structure in place, the supports of the bridge will only be in the river channel during high flow events. The proposal places the new structure approximately 30 meters downstream from the existing Route 72 bridge. The new bridge will have a longer span extending over the Clinch River and CSX railroad, with a straighter approach from the road. There will be four piers supporting the bridge span, with all of the piers based outside of the normally wetted channel. The two abutments (one on each side of the river channel) will

be constructed from the bank, as will the four piers. A work bridge will be built upstream of the permanent bridge using rock-filled timber crib piers and abutments, and the bottom of the bridge structure will be 1.83 meters above the ordinary high water (OHW) mark (Figure 2). The work bridge will be used primarily to install steel structure to the center portion of the bridge. The work bridge piers will temporarily affect the flow of the river, as they will be placed in the ordinarily wetted channel. Once the final pier is completed, all materials will be removed from the cofferdam. These materials will be hauled from the site to be used in the roadway prism or salvaged. The superstructures for the four outer spans of the bridge will be built from the banks, while that for the middle span will be constructed from the work bridge and stream bank. After completion of the superstructure, the work bridge will be dismantled and removed from the construction site. The existing Route 72 bridge will remain in place to be used in the secondary highway system. The maintenance of this existing bridge in regards to salting during the winter season is expected to be much reduced compared to the primary road and new bridge (personal communication with Bill Beuter of VDOT).

RANGEWIDE STATUS OF THE SPECIES

Fine-rayed pigtoe (*Fusconaia cuneolus*)

The fine-rayed pigtoe mussel derives its common name from the satiny appearance of its periostracum, even when wiped dry. This species is a medium-sized mussel with a yellow-green to brown background color marked by fine green rays. It is subtriangular or subrhomboidal in shape and is characterized by a median sulcus which extends all the way into the umbonal region. The beaks are high and curve forward. The ventral margin of the valves is almost straight while the anterior is rounded and the posterior is somewhat pointed. The beak cavity is moderately deep, the pallial line is clearly visible, and the nacre is white. The left valve has two irregular pseudocardinal teeth and double lateral teeth. The right valve has one large pseudocardinal tooth, with a vestigial one above it, and a partly doubled lateral tooth. There is no known sexual dimorphism (Beatty and Neves 1997).

The fine-rayed pigtoe is a short-term brooder, spawning in May and remaining gravid until late July (Bruenderman 1993). Several host fish species have been identified, including the river chub (*Nocomis micropogon*), whitetail shiner (*Cyprinella galactura*), central stoneroller (*Camptostoma anomalum*), telescope shiner (*Notropis telescopus*), white shiner (*Luxilus albeolus*), Tennessee shiner (*Notropis leuciodus*), and mottled sculpin (*Cottus bairdi*) (Bruenderman 1993). This species is believed to live up to 32 years (Bruenderman 1993). The fine-rayed pigtoe generally requires relatively shallow areas in rivers of moderate gradient with stable substrate of sand to cobble sized particles (Hickman 1937). It has also been recorded in the sand and mud bottom of a small creek (Ortmann 1925). This species is currently found most frequently in ford and shoal areas of rivers in the upper Tennessee River basin (Neves 1991).

Historically, the fine-rayed pigtoe was found in the Tennessee River drainage from the mainstem downstream of Knoxville, Tennessee to the middle reaches of the Powell, Clinch, and Holston Rivers in

Virginia. The earliest record was from the Holston River in Tennessee (Lea 1840). Subsequently, the species was located upstream through the North Fork of the Holston River and Big Moccasin Creek (Ortmann 1918), the Clinch River and its tributaries from below Norris Dam to Tazewell County, Virginia (Ortmann 1918; Cahn 1936; Hickman 1937; Stansbery 1970; Stansbery 1973), the Powell River from Union County, Tennessee to Olinger, Virginia, and Puckell Creek in Lee County, Virginia (Ortmann 1918). Ortmann (1918, 1925) also reported finding the fine-rayed pigtoe in other tributaries of the Tennessee River including the Flint, Paint Rock, Elk, Little, and Nolichucky Rivers, and Bear, Limestone, and Hurricane Creeks.

The current distribution of the fine-rayed pigtoe encompasses a large portion of the historical range. Populations presently are found in the Clinch, Powell, and North Fork of the Holston River systems in Virginia and Tennessee; the Elk, Little, and Sequatchie Rivers in Tennessee; and the Paint Rock River in Alabama (Neves 1991). The Clinch River distribution in Virginia extends from the Virginia-Tennessee border to the town of Cedar Bluff, Tazewell County (Neves *et al.* 1980). Tributaries which support populations of the fine-rayed pigtoe are Copper Creek in Scott County and Little River in Russell County (Ahlstedt 1981). The population of the fine-rayed pigtoe in the Clinch River system is the largest in the state of Virginia.

The fine-rayed pigtoe was listed as endangered by the Service on June 14, 1976. A recovery plan for the fine-rayed pigtoe has been completed (U.S. Fish and Wildlife Service 1984).

Shiny pigtoe (*Fusconaia cor*)

The shiny pigtoe mussel derives its common name from the smooth and shiny nature of the periostracum. It is also distinguished by the prominent, wide dark green to blackish rays on a yellow to brown background. Old individuals tend to become darker brown with faint rays, which fade toward the valve margins. The valves are subtriangular with a median sulcus (indentation) and concentric growth rings. The beak is turned forward and anterior from the midline with moderately deep beak cavities (Bogan and Parmalee 1983). There are two pseudocardinal teeth present on the left valve and two lateral teeth while the right valve has three pseudocardinal teeth and one lateral tooth. The nacre is white and is marked by a well-defined pallial line. There is no sexual dimorphism apparent in the valves (Beaty and Neves 1997).

The shiny pigtoe is a short-term brooder (Kitchel 1985). Spawning occurs in late May through early June with gravidity lasting from mid-June until mid-July (Kitchel 1985). Laboratory identified host fish species include the whitetail shiner (*Cyprinella galactura*) and the common shiner (*Notropis cornutus*) (Kitchel 1985; Neves 1991). Other potential host species include the warpaint shiner (*Notropis coccogenis*) and telescope shiner (*Notropis telescopus*) (Kitchel 1985). The shiny pigtoe is estimated to live about 24 years (Kitchel 1985). The shiny pigtoe occupies lotic habitats in shallow areas with moderate to fast currents (Bogan and Parmalee 1983). A stable substrate of sand, gravel, and cobble is generally required for suitable habitat. Shiny pigtoes are usually well burrowed in the

substrate and appear to be relatively sedentary (Kitchel 1985; U. S. Fish and Wildlife Service 1983). Water quality is also of importance to these mussels as they are only found in clear unimpounded sections of streams (U. S. Fish and Wildlife Service 1983).

The shiny pigtoe was first collected in 1834 in the Elk River in Alabama. It has also been found in the Flint and Paint Rock Rivers in Alabama. The shiny pigtoe has been found extensively in the Clinch, Powell, and North Fork Holston Rivers in Tennessee and Virginia. In the Clinch River, this species has been reported at many sites from Anderson County, Tennessee to Tazewell, Virginia (Goodrich 1913; Ortmann 1918; and Stansbery 1973). Ortmann (1918) reported the shiny pigtoe in the Powell River from Claiborne County, Tennessee to Lytton Mill in Lee County, Virginia, and Stansbery (1970) also found this species in the Powell River. In the North Fork Holston River, this species was found from Hawkins County, Tennessee to Holston in Washington County, Virginia (Ortmann 1918). Its distribution in the Tennessee River was reported to be from Cypress Creek near Florence, Alabama upstream to Knoxville, Tennessee (Lewis 1871; Hinkley 1906; Ortmann 1918; Ortmann 1925).

The current distribution of the shiny pigtoe is the North Fork Holston River, Clinch River, Copper Creek, and Powell River in Virginia as well as the Clinch, Powell, and Elk Rivers in Tennessee, and the Paint Rock River in Alabama (U.S. Fish and Wildlife Service 1983). The shiny pigtoe has recently been collected in the Powell River from Powell River Mile (PRM) 65.2 to 136.1 at about 22 sites (TVA 1979; Neves et al. 1980; Dennis 1981). The Clinch River population in Virginia extends from the Virginia-Tennessee line upstream to Nash Ford, Russell County (Clinch River Mile 279.5) (Bates and Dennis 1978; Neves et al. 1980). This population has been located at about 25 sites in this reach (U. S. Fish and Wildlife Service 1983). A gap in its distribution of about 15 miles occurs downstream from the town of Carbo due to toxic spills in 1967 and 1970 (Cairns et al. 1971). The Copper Creek population is known from only two sites in the lower reaches (Ahlstedt 1981) and may not be extant. The shiny pigtoe is present in the North Fork Holston River only upstream of the town of Saltville, Smyth County, Virginia to Broadford, Virginia (Stansbery 1972; Stansbery and Clench 1974). This species is very rare throughout its entire range (Neves 1991).

The shiny pigtoe was listed as endangered on June 14, 1976. A recovery plan has been prepared for this species (U.S. Fish and Wildlife Service 1983).

Additional Endangered Mussel Species

Pendleton Island Preserve, owned by The Nature Conservancy, is approximately 800 to 1000 meters downstream of the proposed bridge project. The mussel assemblage at this site has historically included approximately 43 species, 14 of which are federally listed as endangered. Within the last decade, the shiny pigtoe and the fine-rayed pigtoe have been recorded at this site. Twelve other federally listed endangered mussel species have been reported at Pendleton Island. They are the birdwing pearlymussel (*Lemiox rimosus*), cracking pearlymussel (*Hemistena lata*), dromedary pearlymussel (*Dromus dromas*), rough pigtoe (*Pleurobema plenum*), fanshell (*Cyprogenia stegaria*),

Appalachian monkey face (*Quadrula sparsa*), Cumberland monkeyface (*Quadrula intermedia*), rough rabbitsfoot (*Quadrula cylindrica strigillata*), purple bean (*Villosa perpurpurea*), Cumberland combshell (*Epioblasma brevidens*), oyster mussel (*Epioblasma capsaeformis*), and green-blossom pearlymussel (*Epioblasma torulosa gubernaculum*). The cracking pearlymussel, rough pigtoe, Appalachian monkeyface, rough rabbitsfoot, and Cumberland monkeyface are short-term brooders, with glochidia present in the late spring and early summer. The other seven species are long-term brooders, with glochidia present in late summer and held through the winter, and then released in the spring (Beaty and Neves 1997).

All of the fourteen endangered mussels are lotic species requiring habitats with flowing water and clean substrates composed of sand and gravel. They are associated with shoal or riffle areas in small to large rivers and would be detrimentally impacted by the addition of fine sediments. The range of host fishes for most of these species is unknown. Therefore, the existing fish fauna diversity at this site should be preserved. The majority of these species require cyprinid fishes as glochidial hosts. These fishes all require clean, flowing water with sand, gravel, and cobble substrate. The loss of such habitat through siltation could be detrimental to the mussel community through the loss of suitable host fish. Without an abundance of these host fish, the mussel populations will be unable to recruit new individuals and will eventually decline (Beaty and Neves 1997).

These fourteen endangered mussels, as with most other native mussels in the upper Tennessee River drainage, have many factors contributing to their decline. The main causes of decline for these species are siltation, impoundment of rivers, water pollution, and invasion of exotic species. In most instances, the combined effects of numerous contaminants and induced physiological stresses are the ultimate cause for acute or chronic mortality in a population of mussels (Neves 1993). Siltation and sedimentation from farming, mining, and other land-use practices are implicated in the decline of mussels (Ellis 1931; Coon et al. 1977). Excessive siltation degrades water quality and substrate, clogs gills, reduces feeding efficiency and growth, and can eventually smother mussels if sufficient accumulation occurs (Ellis 1931; Marking and Bills 1979).

Slender chub (*Erimystax cahni*)

The slender chub is a member of the Cyprinidae family of fish, which contains many species of chubs, shiners, and minnows that inhabit fresh, flowing waters. It is a small, silvery, longnosed, and elongate fish; adults average three to three and one-half inches in length. The slender chub occurs sporadically only in two warmwater rivers of the upper Tennessee River drainage in Virginia and Tennessee, the Clinch and Powell Rivers (Smogor and Angermeier 1997). The species has never been observed in the Virginia part of the Clinch River; however, Burkhead and Jenkins (1991) indicated the slender chub probably occurred historically in the Clinch River in Virginia, but was likely extirpated by the catastrophic fish kill in 1967 that affected the entire reach of the river in Scott County (Cairns et al. 1971; Jenkins and Burkhead 1994). The prospect of this species entering the Clinch River of Virginia from Tennessee is low (Jenkins and Burkhead 1994); however, the potential and impetus exist to re-

introduce the species to suitable parts of the Clinch River in Virginia (U. S. Fish and Wildlife Service 1983). The Service designated critical habitat for this species when it was listed, meaning that this portion of the Clinch River is necessary to the conservation of the slender chub. In Virginia, the Clinch River is designated as critical habitat for the species from the Virginia and Tennessee State line upstream through Scott County, Virginia. In Tennessee, critical habitat extends downstream to the backwaters of Norris Lake. The ESA includes transplantation as part of necessary conservation methods and procedures when designating critical habitat. The slender chub was most recently observed by ichthyology students and Dr. David Etnier of the University of Tennessee at Knoxville, in the Clinch River at Frost Ford in Tennessee on October 9, 1996 (Chris Skelton, personal communication). The Frost Ford site is approximately 46.1 river miles downstream of the existing Route 72 bridge.

The slender chub typically has been found in moderately to swiftly flowing water over river bottoms of unsilted pea-sized gravel. Such habitats are generally considered necessary for this species. Unsilted gravel provides aquatic invertebrates and spawning substrate for the slender chub. This species is also known to occasionally or seasonally occupy slower flowing, deeper areas, perhaps using such areas as winter refugia (Starnes and Etnier 1980; Burkhead and Jenkins 1991; Etnier and Starnes 1993).

The slender chub and/or its designated critical habitat may be impacted by siltation that reduces heterogeneity of the stream bottom, increases water turbidity, limits aquatic plant growth, alters invertebrate communities, and increases mortality of fish eggs and larvae. Thus, siltation limits fish survival and availability of food, cover, and spawning habitat for many species of fish (Chutter 1969; Gammon 1970; Muncy et al. 1979; Berkman and Rabeni 1987).

ENVIRONMENTAL BASELINE

As defined in 50 CFR 402.02 “action” means all activities or programs of any kind, authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas. The “action area” is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. The direct and indirect effects of the actions and activities resulting from the federal action must be considered in conjunction with the effects of other past and present federal, state, or private activities, as well as the cumulative effects of reasonably certain future state or private activities within the action area. The Service has determined that the action area for this project is from 200 meters upstream to 1000 meters downstream of the proposed bridge. Pendleton Island, a preserve of The Nature Conservancy, is located approximately 800 to 1000 meters downstream of the proposed bridge project. This portion of the Clinch River is also designated as critical habitat for the slender chub (*Erimystax cahni*).

Status of the Species in the Action Area

Mussel Fauna

The area from 200 meters upstream of the existing bridge to 800 meters downstream of the existing bridge was surveyed in 1997 by biologists from the Virginia Cooperative Fish and Wildlife Research Unit of the U. S. Geological Survey at Virginia Polytechnic Institute, the Virginia Department of Game and Inland Fisheries (VDGIF), and VDOT for the presence of freshwater mussels (Beaty and Neves 1997). The downstream portion of the action area at Pendleton Island was not included in this survey because recent information exists regarding federally listed mussels at this location (see Rangewide Status of the Species), and another survey would likely result in disturbing mussels and the substrate with little expectation for gaining pertinent new information. In the area surveyed, a total of 26 species of mussels were identified as present or had previously occurred in this section of the Clinch River through the location of live animals or recovery of relic shells. The majority of the mussels were located in five distinct aggregations. Two of these were upstream of the existing bridge while three were downstream. The aggregation farthest upstream of the bridge was approximately 200 meters upstream along the right ascending bank. The second aggregation upstream of the bridge was along the left ascending bank in the backwater behind an island. This pool area contained 12 species of mussels, including one shiny pigtoe. Two of the three aggregations of mussels downstream of the bridge occur along the right ascending bank. The most upstream of these aggregations lies about 350 meters downstream of the existing bridge. This was the closest area downstream of the existing Route 72 bridge that federally endangered mussels were found. Found at this location were several specimens of fine-rayed pigtoes. The second aggregation of a diverse mussel assemblage is located from immediately upstream of Pendleton Island along the right ascending bank for about 100 meters upstream. This area contains almost all of the species of mussels found in the surveyed reach of the river, including the fine-rayed pigtoe and the shiny pigtoe.

On September 18, 1997, biologists from the Virginia Cooperative Fish and Wildlife Research Unit searched the above previously identified areas that had live, federally endangered mussels, in the vicinity of the Route 72 bridge crossing of the Clinch River. Overall, the areas searched were found to be similar to observations recorded earlier; however, two additional federally endangered mussel species, the rough rabbitsfoot (*Quadrula cylindrica strigillata*), and the purple bean (*Villosa perpurpurea*), were found approximately 20 meters upstream of Pendleton Island.

Fish Fauna

The slender chub has never been commonly collected in recent decades. Recent fish surveys performed by biologists of the Virginia Polytechnic Institute and State University and Virginia Cooperative Fish and Wildlife Research Unit, were conducted during 1991 and 1992 from 200 m upstream and 200 m downstream of the existing bridge (Smogor and Angermeier 1997). These surveys found 53 fish species present; however, the slender chub was not observed. Gravel-bottomed habitat with moderate-flow that appears to be suitable for the slender chub, occurs in the river along the right-ascending bank from about 450 to 800 meters downstream of the proposed bridge site. Gravel and cobble stream bottom also occurs throughout the riffle area immediately downstream of the existing bridge. The proximity of deeper, moderate-flow areas with bottoms of large cobble and boulder could

presumably provide seasonal refugia for the slender chub. Since this portion of the Clinch River is designated critical habitat for the slender chub, precautions are necessary to minimize detrimental effects to critical habitat.

Effects of the Action - Although there is a slight risk that the slender chub and/or one or more endangered mussel species in the action area could be killed or injured during construction, such risk is thought to be extremely low. The slender chub does not likely occur in the vicinity. Cofferdam construction, work bridge construction, and placement, could possibly kill or injure the slender chub and mussels by crushing or covering them, creating high turbidity in the water column, or by dewatering the streambed within the cofferdam. Mussels could possibly be removed from the streambed during excavation, resulting in death. There is a slight chance that direct effects may occur downstream and slightly upstream due to siltation from construction related activity, and that these effects may harm mussels, the slender chub, and temporarily degrade critical habitat as discussed previously in Rangewide Status of the Species.

Indirect effects are defined as those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). Indirect effects to mussels, the slender chub, and designated critical habitat may result from siltation during rain events after construction from 200 meters upstream to 1000 meters downstream of the proposed bridge. The roadway's straighter approach to the bridge and spanning of the railroad trestle, reduces the likelihood of a spill from vehicles.

Cumulative Effects - Cumulative effects include the effects of future state, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. The Service is not aware of any future State, local, or private actions planned for this site.

CONCLUSION

After reviewing the current status of the fourteen mussels and slender chub throughout their range and in the action area, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Services's biological opinion that the Route 72 bridge construction project, as proposed, is not likely to jeopardize the continued existence of the 14 federally listed mussels or slender chub, and is not likely to destroy or adversely modify designated critical habitat for the slender chub.

III. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the Endangered Species Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of

listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant. Under the terms of Section 7 (b) (4) and Section 7 (o) (2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

AMOUNT OR EXTENT OF TAKE

The Service anticipates that incidental take of the 14 federally listed mussels and slender chub will be difficult to detect because finding a dead or impaired specimen is unlikely, since all of these species are small in size, cryptic in appearance, and/or occur in habitat that makes detection difficult. However, take of these species can be anticipated to occur within an area from 200 meters upstream to 1000 meters downstream, by loss of food, impairment of water quality, impairment of spawning and spawning habitat, impairment of juvenile and adult habitat, and in the case of the mussels, a decrease in the presence or availability of host fish.

REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary, and must be implemented by the Corps so that they become binding conditions of any permit issued to the applicant in order for the exemption in 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Corps (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7 (o) (2) may lapse. The Service considers the following reasonable and prudent measures to be necessary and appropriate to minimize take of the fourteen mussels and slender chub.

- o Instream construction activities must be conducted during the time of year when impacts to federally listed mussels and slender chub reproductive cycles is minimized. Instream construction must be precluded from April 1 through July 31.
- o Siltation of the water column of the Clinch River must be minimized to the maximum extent possible to avoid stress or death to listed mussels and fish.
- o Instream construction activities in the Clinch River, and other stream bank construction activities, must be minimized to avoid siltation and pollutants entering the river and avoid

physical injury to listed mussels and fish.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Endangered Species Act, the Corps and VDOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline the required reporting requirements. Monitoring is not required for this project because surveys found no federally listed species in the immediate area of the proposed bridge and only a small number, if any, of the fourteen mussel species and/or slender chubs are likely to be affected by the proposed project and the anticipated take is minimal. These terms and conditions are non-discretionary.

1. No instream work from April 1 through July 31 of any year.
2. Any vegetation removal on or adjacent to the streambank will be minimized. This material will be removed to a site above the 100 year flood zone. Trees will be felled on land rather than into the Clinch River. Once construction is completed, appropriate vegetation will be seeded. In addition, native trees (willows, sycamores, box elder, etc.) will be planted on areas where trees were removed during construction, so that at least a 70% establishment success rate is achieved within two years after construction is complete.
3. Sediment and erosion controls must be strictly adhered to in accordance with the Virginia Erosion and Sediment Control Handbook (Virginia Department of Conservation and Recreation 1992). Silt fences and check dams must be inspected by VDOT personnel at least weekly, and daily during rain events.
4. Minimize construction impacts on the south side of the river to prevent sedimentation of the right ascending side of the river channel (where most of the mussels occur).
5. Minimize construction impacts on the left ascending bank immediately upstream of the existing bridge where a mussel assemblage occurs.
6. All construction-related material not being used on the construction site will be removed to an area above the 100 year flood zone.
7. Store the minimum amount of fuels and lubricants necessary on site. All storage areas for lubricants, fuels, and paving materials must be above the 100 year flood zone. Store fuels and lubricants in safe locations and containers. The area where these items are stored must be lined with an impervious membrane to prevent environmental harm in the event of a spill. These materials must be stored on the other side of the railroad tracks from the river, or other suitable sites approved by the Service, that provide a physical barrier to entry into the river in the event

of a spill.

8. Changing oil or lubricating equipment will be done in an area and in a manner so as to prevent any oil from contaminating soil on the construction site and/or reaching streams or groundwater.
9. No excavation of the river bottom will be allowed outside of cofferdams.
10. Instream work (with the exception of the placement of the timber/rock cribs for the temporary work bridge) must be completed in the dry using non-erodible cofferdams. Water within the cofferdams will be pumped into sedimentation control basins constructed on dry land adjacent to the project construction site.
11. Any materials used for instream construction (i.e., timber cribs, rocks, etc.) will be free of any toxic residual chemicals or materials (i.e., creosote, heavy metals, etc.) that can be leached or rinsed into the river. Work bridges and cofferdams shall not use creosoted or chemically treated wood (i.e. arsenic or copper treated products).
12. No excess paving or waste materials shall be left on the construction site or unapproved areas.
13. Construction equipment shall be kept out of the river channel except within cofferdam containment areas. When not in use, this equipment shall be stored above the 100 year flood zone.
14. Where floodplain disturbances from the use of construction equipment (i.e., rutting, etc.) may occur, mats will be used to minimize disturbance.
15. Special precautions shall be taken to minimize vegetation damage, surface compaction, and the amount of exposed soil or accumulated surface materials due to equipment or vehicular tracking on access roads to the construction site.
16. Spills which occur on the bridge or nearby roadway shall be drained to the north side of the railroad trestle and contained in a catch basin and handled to minimize any hazardous or toxic materials entering the river. After the new pavement on the bridge and road on the streambank is installed, VDOT will require the pavement on the bridge and road surface to be flushed with water into catch basins and handled to minimize runoff of petroleum products into the river.
17. Appropriate VDOT employees and contract construction workers will be made aware of these terms and conditions and instructed to incorporate them into the project. A copy of these terms and conditions shall be posted in a visible location within the site construction trailer.
18. VDOT must contact the Service four weeks before initiation of construction to ensure proper

coordination on this project and implementation of the terms and conditions of the incidental take statement.

19. A VDOT biologist must visit the project site weekly during construction to assure adherence to all of the reasonable and prudent measures. If violations of these reasonable and prudent measures occur, VDOT must stop work and notify the Corps, the Service, and the VDOT Aquatic Ecology Chief immediately, and remedial measures to correct the violation must be underway within 24 hours of their discovery and completed as soon as possible.
20. Care must be taken in handling any dead specimens of proposed or listed species that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, notify the Service at the address provided.
21. VDOT is required to notify the Corps of Engineers and the Service before initiation of construction and upon completion of the project. All information required by these terms and conditions to be provided to the Service must be sent to the following address and/or telephone number:

Southwestern Virginia Field Office
U. S. Fish and Wildlife Service
P. O. Box 2345
988 West Main Street
Abingdon, Virginia 24212
(540) 623-1233

IV. REINITIATION OF FORMAL CONSULTATION

This concludes formal consultation on the action outlined in the Corps' request. As required by 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any

operations causing such take must cease pending reinitiation.

If this opinion does not contain national security or confidential business information, the Service will provide copies to the appropriate state natural resource agencies ten business days after the date of this opinion.

The Service appreciates the opportunity to work with the Corps in fulfilling our mutual responsibilities under the Endangered Species Act. Please contact Leroy Koch at our Southwestern Virginia Field Office at (540) 623-1233, if you require additional information or wish to discuss our comments further.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

cc: Bill Beuter
VDOT, Richmond, Virginia
Doris Bush
VDOT, Bristol, Virginia

Filename:rout72bo.wpd

LKoch:10/14/97

bcc: AGARD-South, Region 5
ARD-ES, Region 5
Endangered Species Coordinator, Region 5
Endangered Species Coordinator, Region 4
Endangered Species Biologist, CBFO
Endangered Species Biologist, VAFO
Law Enforcement, Richmond (Attention: Senior Resident Agent)
Asheville, North Carolina Field Office, Cookeville, Tennessee Field Office, West Virginia Field
Office, Daphne, Alabama, Field Office

10 business days after the date of this letter, mail copies to:

VDGIF, Richmond (Attn: Environmental Services)

VDGIF, Blacksburg (Mike Pinder)

VDGIF, Forrest (Monte McGregor)

DNH, Richmond (Attn: Tom Smith)

Addresses for FWS Field Offices

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